Please add the following claims:

18. (New) A process for forming a semiconductor device comprising a plurality of MOS transistors at predetermined regions of a silicon substrate, comprising:

implanting, in the predetermined regions of the silicon substrate, a chemical species with an implantation energy between 2 and 15 keV, wherein the chemical species is Si, Ge, Ar, Ne or He;

oxidizing the surface of the silicon substrate to form a gate oxide layer of non uniform thickness; and

forming MOS transistors at the predetermined regions of the silicon substrate, wherein the oxidized layer at the predetermined regions forms the gate oxide layer of the MOS transistors.

19. (New) The process of claim 18, wherein implanting in predetermined regions is an ion implantation step.

20. (New) The process of claim 18, wherein the implanted dose is from 5×10^{13} to 5×10^{15} atoms/cm^2.

21. (New) The process of claim 18, wherein growing a silicon oxide layer comprises oxidation in a furnace, by plasma oxidation, electrochemical oxidation or rapid thermal oxidation.

22. (New) The process of claim 18, wherein growing the silicon oxide layer comprises an oxidation step in a furnace at a temperature of at least 300°C and in an oxidizing atmosphere.

23. (New) A process for forming a semiconductor device comprising a plurality of MOS transistors at predetermined regions of a silicon substrate, comprising:

implanting, in the predetermined regions of the silicon substrate, a chemical species, wherein the chemical species is Ne or He;

oxidizing the surface of the silicon substrate to form a gate oxide layer of non uniform thickness; and

forming MOS transistors at the predetermined regions of the silicon substrate, wherein the oxidized layer at the predetermined regions forms the gate oxide layer of the MOS transistors.

24. (New) The process of claim 23, wherein implanting in predetermined regions is an ion implantation step.

25. (New) The process of claim 23, wherein the implanted dose is from 5×10^{13} to 5×10^{15} atoms/cm^2.

26. (New) The process of claim 23, wherein growing a silicon oxide layer comprises oxidation in a furnace, by plasma oxidation, electrochemical oxidation or rapid thermal oxidation.

27. (New) The process of claim 23, wherein growing the silicon oxide layer comprises an oxidation step in a furnace at a temperature of at least 300°C and in an oxidizing atmosphere.

28. (New) A process for forming a semiconductor device comprising a plurality of MOS transistors at predetermined regions of a silicon substrate, comprising:

implanting, in the predetermined regions of the silicon substrate, a chemical species with an implantation energy between 2 and 15 keV, wherein the chemical species is Ar, Ne or He;

oxidizing the surface of the silicon substrate to form a gate oxide layer of non uniform thickness; and

forming MOS transistors at the predetermined regions of the silicon substrate, wherein the oxidized layer at the predetermined regions forms the gate oxide layer of the MOS transistors.

29. (New) The process of claim 28, wherein implanting in predetermined regions is an ion implantation step.

30. (New) The process of claim 28, wherein the implanted dose is from 5×10^{13} to 5×10^{15} atoms/cm^2.

31. (New) The process of claim 28, wherein growing a silicon oxide layer comprises oxidation in a furnace, by plasma oxidation, electrochemical oxidation or rapid thermal oxidation.

32. (New) The process of claim 28, wherein growing the silicon oxide layer comprises an oxidation step in a furnace at a temperature of at least 300°C and in an oxidizing atmosphere.

33. (New) A process for forming a semiconductor device comprising a plurality of MOS transistors at predetermined regions of a silicon substrate, comprising:

implanting, in the predetermined regions of the silicon substrate, a chemical species with an implantation energy between 2 and 15 keV and with an implanted dose from 5×10^{13} to 5×10^{15}, wherein the chemical species is Ar, Ne or He;

oxidizing the surface of the silicon substrate to form a gate oxide layer of non uniform thickness; and

forming MOS transistors at the predetermined regions of the silicon substrate, wherein the oxidized layer at the predetermined regions forms the gate oxide layer of the MOS transistors.

34. (New) The process of claim 33, wherein implanting in predetermined regions is an ion implantation step.

35. (New) The process of claim 33, wherein growing a silicon oxide layer comprises oxidation in a furnace, by plasma oxidation, electrochemical oxidation or rapid thermal oxidation.

36. (New) The process of claim 33, wherein growing the silicon oxide layer comprises an oxidation step in a furnace at a temperature of at least 300°C and in an oxidizing atmosphere.

37. (New) A semiconductor device comprising a plurality of MOS transistors on a silicon substrate, wherein a portion of the MOS transistors comprise a gate oxide layer of a first thickness, and wherein the other MOS transistors comprise a gate oxide layer of a second thickness, wherein the second thickness is greater than the first thickness, and wherein the gate oxide layer of a first thickness is formed by oxidation of predetermined non-implanted regions of the silicon substrate, and wherein the gate oxide layer of a second thickness is formed by the method comprising:

implanting a chemical species into predetermined regions of the silicon substrate corresponding to the predetermined location of the other MOS transistors with an implantation energy between 2 and 15 keV, wherein the chemical species is Si, Ge, Ar, Ne or He; and

oxidizing the surface of the silicon substrate to form a gate oxide layer having a thickness greater than the first thickness.

38. (New) The process of claim 37, wherein implanting in predetermined regions is an ion implantation step.

39. (New) The process of claim 37, wherein the implanted dose is from 5×10^{13} to 5×10^{15} atoms/cm^2.

40. (New) The process of claim 37, wherein growing a silicon oxide layer comprises oxidation in a furnace, by plasma oxidation, electrochemical oxidation or rapid thermal oxidation.

41. (New) The process of claim 37, wherein growing the silicon oxide layer comprises an oxidation step in a furnace at a temperature of at least 300°C and in an oxidizing atmosphere.

42. (New) A semiconductor device comprising a plurality of MOS transistors on a silicon substrate, wherein a portion of the MOS transistors comprise a gate oxide layer of a first thickness, and wherein the other MOS transistors comprise a gate oxide layer of a second thickness, wherein the second thickness is greater than the first thickness, and wherein the gate oxide layer of a first thickness is formed by oxidation of predetermined non-implanted regions of the silicon substrate, and wherein the gate oxide layer of a second thickness is formed by the method comprising:

implanting a chemical species into predetermined regions of the silicon substrate corresponding to the predetermined location of the other MOS transistors, wherein the chemical species is Ne or He; and

oxidizing the surface of the silicon substrate to form a gate oxide layer having a thickness greater than the first thickness.

43. (New) The process of claim 42, wherein implanting in predetermined regions is an ion implantation step.

44. (New) The process of claim 42, wherein the implanted dose is from 5 x 10^{13} to 5 x 10^{15} atoms/cm^2.

45. (New) The process of claim 42, wherein growing a silicon oxide layer comprises oxidation in a furnace, by plasma oxidation, electrochemical oxidation or rapid thermal oxidation.

46. (New) The process of claim 42, wherein growing the silicon oxide layer comprises an oxidation step in a furnace at a temperature of at least 300°C and in an oxidizing atmosphere.

47. (New) A semiconductor device comprising a plurality of MOS transistors on a silicon substrate, wherein a portion of the MOS transistors comprise a gate oxide layer of a first thickness, and wherein the other MOS transistors comprise a gate oxide layer of a second thickness, wherein the second thickness is greater than the first thickness, and wherein the gate oxide layer of a first thickness is formed by oxidation of predetermined non-implanted regions of the silicon substrate, and wherein the gate oxide layer of a second thickness is formed by the method comprising:

implanting a chemical species into predetermined regions of the silicon substrate corresponding to the predetermined location of the other MOS transistors with an implantation energy between 2 and 15 keV, wherein the chemical species is Ar, Ne or He; and

oxidizing the surface of the silicon substrate to form a gate oxide layer having a thickness greater than the first thickness.

48. (New) The process of claim 47, wherein implanting in predetermined regions is an ion implantation step.

49. (New) The process of claim 47, wherein the implanted dose is from 5 x 10^{13} to 5 x 10^{15} atoms/cm^2.

50. (New) The process of claim 47, wherein growing a silicon oxide layer comprises oxidation in a furnace, by plasma oxidation, electrochemical oxidation or rapid thermal oxidation.

51. (New) The process of claim 47, wherein growing the silicon oxide layer comprises an oxidation step in a furnace at a temperature of at least 300°C and in an oxidizing atmosphere.

52. (New) A semiconductor device comprising a plurality of MOS transistors on a silicon substrate, wherein a portion of the MOS transistors comprise a gate oxide layer of a first thickness, and wherein the other MOS transistors comprise a gate oxide layer of a second thickness, wherein the second thickness is greater than the first thickness, and wherein the gate oxide layer of a first thickness is formed by oxidation of predetermined non-implanted regions of the silicon substrate, and wherein the gate oxide layer of a second thickness is formed by the method comprising:

implanting a chemical species into predetermined regions of the silicon substrate corresponding to the predetermined location of the other MOS transistors with an implantation energy between 2 and 15 keV and with an implanted dose from 5 x 10^{13} to 5 x 10^{15}, wherein the chemical species is Si, Ge, Ar, Ne or He; and